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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,924	07/31/2003	Shao-Jen Lim	046006-0305310	7578

570 7590 04/05/2007  
AKIN GUMP STRAUSS HAUER & FELD L.L.P.  
ONE COMMERCE SQUARE  
2005 MARKET STREET, SUITE 2200  
PHILADELPHIA, PA 19103

EXAMINER

SINGH, RAMNANDAN P

ART UNIT PAPER NUMBER

2614

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/630,924

Applicant(s)

LIM ET AL.

Examiner

Ramnandan Singh

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan et al [US 20030210074 A1] in view of Beck [US 20020171402 A1].

Regarding claim 1, Morgan et al teach a circuit for signal transmission shown in Fig. 3, the circuit comprising:

- a current source (I<sub>source</sub>) [Figs. 3-4];
- a current sink (I<sub>sink</sub>) having a current control terminal [Figs. 3-4];
- a current steering circuit (200) having a pair of output nodes, the current steering

circuit being arranged to receive current from the current source and to pass current to the current sink, and the current steering circuit being configured to provide a differential signal to a load connected across the output nodes; and

a control circuit (112) including a voltage regulator (118), the voltage regulator being configured to produce a regulated voltage based on a comparison between a reference voltage and an offset voltage [Figs. 3-6 ; Para: 0003; 0005-0006; 0011; 0016-0017; 0028-0030; 0039; claims 1-8].

Although Morgan et al teach regulating a desired voltage output differential (VOD) using source current controller (240) and sink current controller (242) [Figs. 4-6; Para: 0032-0039], they do not teach expressly the voltage regulation, wherein the current control terminal of the current sink is arranged to receive the regulated voltage.

Beck teaches a voltage regulator, the voltage regulator having the capability to both sink and source current while maintaining a substantially predetermined voltage level [ Para: 0006; 0012-0017; claims 1, 3]. Further, the current control terminal of the current sink is arranged to receive the regulated voltage [Fig. 1; Para: 0012].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Beck with Morgan et

al so that the system may operate satisfactorily [Beck; Para: 0012; lines 12-17].

Regarding claim 2, Morgan et al further teach the circuit for signal transmission, wherein the current steering circuit (200) includes two switches, each switch having an input node and one of the pair of output nodes and being configured to provide current to the respective output node or to receive current from the output node according to a potential at the input node [Figs. 3-4].

Regarding claim 3, Morgan et al further teach the circuit for signal transmission, wherein each switch of the current steering circuit includes a first transistor and a second transistor, and wherein the first transistor of each switch is configured and arranged to conduct current in response to a high potential at the respective input node and to be substantially nonconductive in response to a low potential at the respective input node, and wherein the second transistor of each switch is configured and arranged to conduct current in response to a low potential at the respective

input node and to be substantially nonconductive in response to a high potential at the respective input node [Figs. 4-5; Para: 0028-0029].

3. Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan et al as applied to claims 1, 2 above.

Regarding claim 4, Morgan et al do not teach expressly using a switch with two

Transistors, one PMOS and another NMOS.

Since Morgan et al teach using switches based transistors [Figs. 3-6], it would have been obvious to one of ordinary skill in the art at the time the invention was made to accommodate each switch of the current steering circuit including a first transistor and a second transistor, and wherein each first transistor is a PMOS transistor and each second transistor is an NMOS transistor subject to circuit, system and design constraints.

Claims 5-9 are rejected for the reasons stated above in claim 4.

***Response to Arguments***

4. Applicant's arguments filed on Jan. 19, 2007 have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

5. Claims 10-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on 571-272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramnandan Singh  
Examiner  
Art Unit 2614

A handwritten signature in black ink, appearing to read 'Ramnandan Singh', is written over a horizontal line.